PREPARING AND SPLITTING FIELD SAMPLES OF BITUMINOUS MIXTURES FOR TESTING

(An Arizona Method)

SCOPE

1. (a) This procedure describes the preparation and splitting of field samples of bituminous mixtures for testing.

(b) This test method may involve hazardous material, operations, or equipment. This test method does not purport to address all of the safety concerns associated with its use. It is the responsibility of whomever uses this test method to consult and establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

APPARATUS

2. Requirements for the frequency of equipment calibration and verification are found in Appendix A3 of the Materials Testing Manual. Apparatus shall consist of the following:

(a) A balance or scale capable of measuring the maximum weight to be determined and conforming to the requirements of AASHTO M 231, except the readability and sensitivity of any balance or scale utilized shall be at least 0.1 gram.

(b) Oven capable of maintaining a temperature of 290 ± 10 °F.

(c) Closed-end samplers as illustrated in **Figure 1** (or similiar), constructed of 16 to 18 gauge sheet metal, having a height of 3 inches, a minimum length of 13 inches, and widths of approximately 2-1/2 inches, 3 inches, or 3-1/2 inches.

(d) A concrete trowel or hand float. If desired, a straightedge of sufficient length to span the final diameter of the circular mass may be used.

(e) Small scoop, spatulas, and suitable size containers.

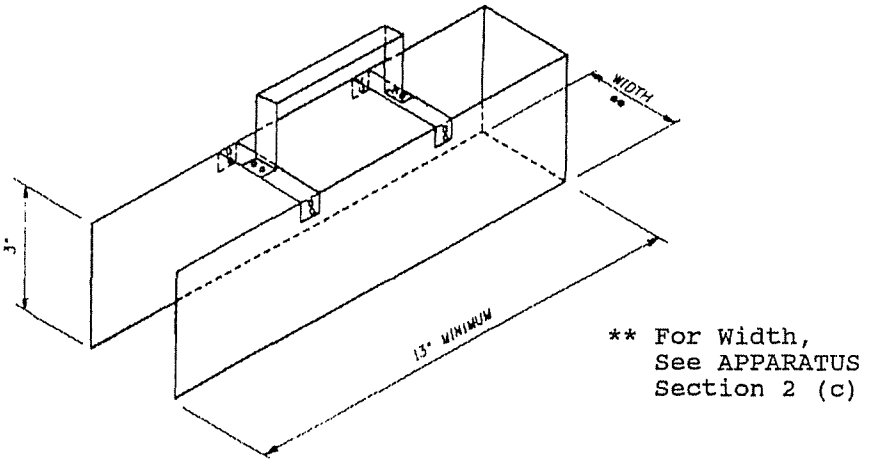

FIGURE 1

PREPARATION OF SAMPLE

3. (a) Samples may be stored for indefinite periods of time at temperatures not exceeding 140 °F.

(b) The material shall be easily workable and pliable when splitting. If necessary, the sample may be heated at 290 ± 10 °F for a maximum of 3 hours. The 3-hour time period begins when the oven reaches the specified temperature.

(c) If necessary, the material shall be reduced in size to provide a workable amount of material from which to obtain all required samples by thoroughly mixing and quartering, splitting with a mechanical (clam-shell) splitter, or using a four-way splitter such as a "Quartermaster". When utilizing a mechanical (clam-shell) splitter, the width of the individual chute openings shall be approximately 1-1/2 to 2-1/2 times larger than the largest particles in the sample to be split. Generally it will only be necessary to reduce the material one time by quartering or splitting. A light coat of vegetable cooking spray may be sprayed on the equipment to help shed the asphaltic concrete. In no case shall diesel fuel or similar solvent be used. Individual samples for testing shall not be obtained by quartering or splitting, but rather as described in Section 4.

(d) Place the hot material on a tarp or a sheet of heavy paper large enough to manipulate the sample. In a rolling motion thoroughly mix the material. Leave the mound in a circular shape after rolling is completed.

(e) Spread the material into a circular mass. Spreading may be accomplished either by leveling the mound of material with a concrete trowel or hand

float; or by placing a straightedge of sufficient length to span the final diameter of the circular mass over the center of the material and rotating it until the desired height is obtained. Whichever method is utilized, the operator shall assure that the material is evenly distributed with as little segregation as possible. The thickness of the circular mass shall not exceed 3 inches. Generally a depth of 1-1/2 to 2 inches will provide acceptable size samples.

(f) At any time during obtaining test samples, the material may be reheated for a maximum of 1 hour at a temperature not exceeding 300 °F to restore pliability.

OBTAINING TEST SAMPLES

4. (a) The required samples for testing, with the exception of moisture content, shall be obtained as described in paragraphs (b) through (f) below. For obtaining test samples for moisture content, see paragraph (g) below. **The samples may be obtained in any sequence as long as the sample for moisture content is taken immediately before or after the sample for determination of asphalt content.** The width of sampler to be used is dependent upon the size of aggregate in the sample and/or the amount of material needed.

(b) The samples shall be obtained by placing the closed end of the sampler as near the center of the mass as possible with the open end of the sampler extending beyond the edge of the circular mass (**see Figure 2**). Force the sampler down to the bottom of the pile and remove the contents that are captured by sliding the sampler out of the pile, and placing the contents into a tared container.

(c) Obtain additional material, as necessary, by repeating the procedure in paragraph (b), at a different location in the pile so that a cut does not overlap a previous cut (**see Figure 3**).

(d) If small amounts of material are needed, slide the sampler out and to the side of the pile. Lift the sampler up and turn it perpendicular to the material. Force the sampler down through the full width of the material, starting at the closed end portion of the material. (**Figure 4** provides an illustration of this procedure.) If necessary, additional material may be obtained by taking multiple cuts. Utilize the entire portion(s) taken and do not attempt to obtain an exact weight.

(e) If excess material is obtained, the sample shall be returned to a place not disturbing the rest of the circular mass. If the remaining mass is large enough, and is undisturbed, obtain another sample for the test, if necessary utilizing a smaller width sampler. Alternatively, the sample may be returned to the circular mass and the material re-rolled and spread to a thinner depth.

(f) If the remaining mass is not large or uniform enough to obtain required samples, re-roll and spread the material in the same manner described in section 3 (e).

(g) Test samples for determining moisture content may be obtained by use of the sampler as described in paragraps (b) through (f) above, or by taking several small portions with a small scoop at random locations throughout the mass.

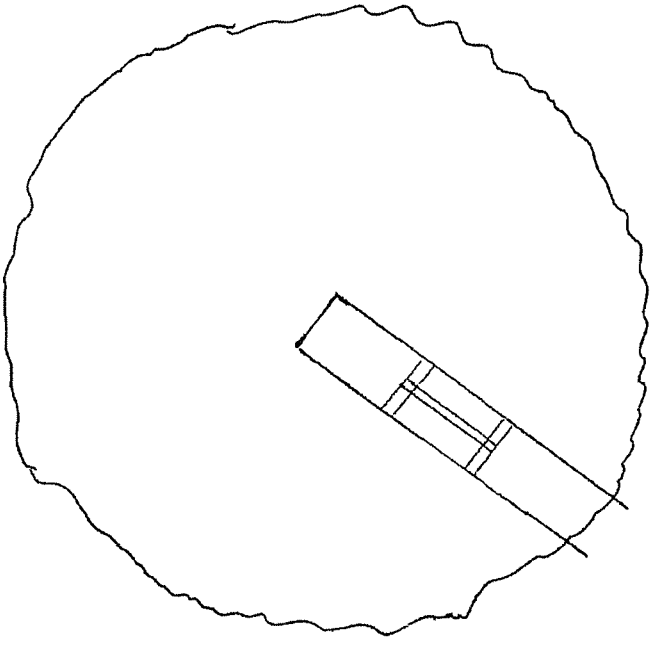

FIGURE 2

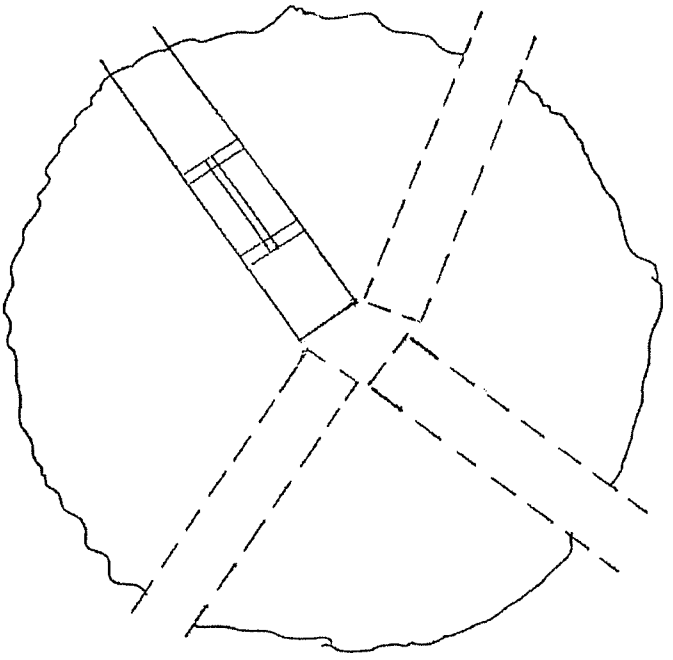

FIGURE 3

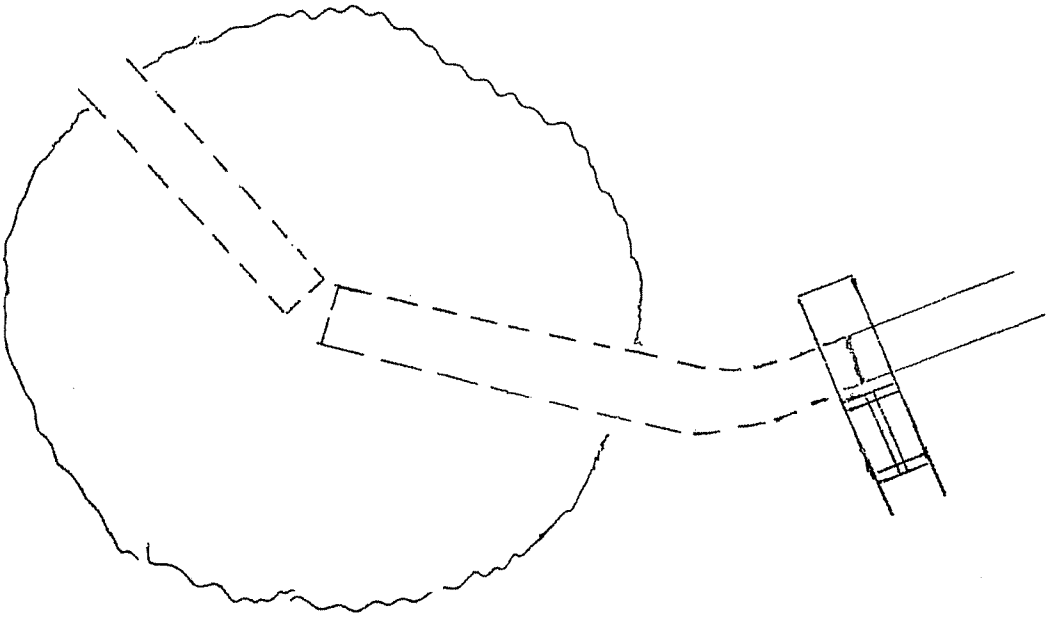

FIGURE 4